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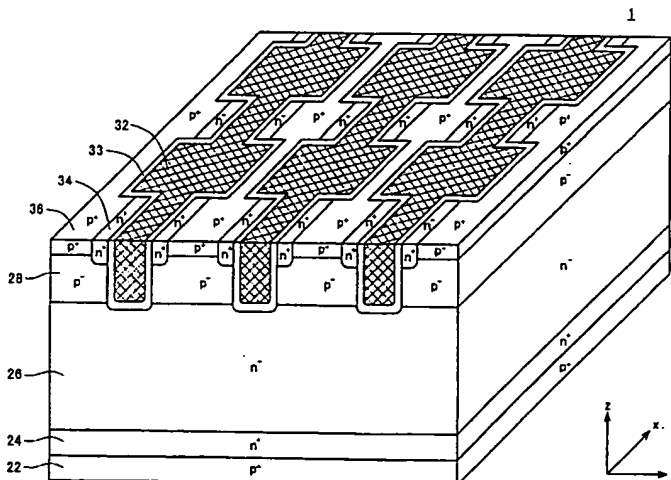
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(54) Title: TRENCH GATE FIELD EFFECT DEVICES



(57) Abstract: The present invention provides a technique for accumulating minority carriers in the body region, that is, the intermediate region interposed between the top region and the deep region, and thus increasing the concentration of minority carriers in the intermediate region. A semiconductor device has a top region (34) of a second conductivity type, a deep region (26) of the second conductivity type, and an intermediate region (28) of a first conductivity type for isolating the top region and the deep region. The semiconductor device further has a trench gate (32) facing a portion of the intermediate region via an insulating layer (33). The portion facing the trench gate isolates the top region and the deep region. The trench gate extends along a longitudinal direction. The width of the trench gate is not uniform along the longitudinal direction; instead the width of the trench gate varies along the longitudinal direction.

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